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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,766	06/23/2006	David Antoine Christian Marie Roovers	NL040038	1289
24737 7590 12/26/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			EXAMINER PAUL, DISLER	
			ART UNIT 2615	PAPER NUMBER
			MAIL DATE 12/26/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,766	<b>Applicant(s)</b> ROOVERS ET AL.	
	<b>Examiner</b> Disler Paul	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4,9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boland (US 2003/0123674 A1) and Matsuo (US 6,317,501 B1).

Re claim 1, Boland disclose of the system for suppressing audio distortion, comprising: echo cancelling means coupled between an audio output and a distorted desired audio sensing microphone (FIG. 2 WT (240); page 4 par[0043]), and a filter arrangement coupled to the echo cancelling means and/or the microphone, the filter arrangement including filter coefficients representing reverberation distortion in the desired audio sensed by the microphone (fig.2 wt (220); page 4 par[0049,0053-0055] with filter to further suppress echo signals not suppress).

However, Boland fail to disclose of the specific wherein the microphone being of a microphone array. However, Matsuo disclose of a system wherein the specific wherein the microphone being of a microphone array (fig.4-6; col.2 line 19-50) for the purpose of

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emphasizing the target sound with large correlation to the noise.

Thus, taking the combined teaching of Boland and Matsuo as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify Boland by incorporating the microphone being of a microphone array for the purpose of emphasizing the target sound with large correlation to the noise.

Re claim 3, the system according to claim 1, wherein the filter arrangement is arranged to be adaptive to the reverberation distortion and/or the desired audio signal sensed by the microphone array (page 4 par[0049,0053-5]).

Re claim 4, the system according to claim 1, wherein the system is arranged for updating the filter coefficients in case the reverberation not cancelled by the echo cancelling means dominates the audio signal sensed by the microphone array (page 2 par[0018,0025,0049]).

Re claim 9, the system according to claim 1, wherein each microphone of the microphone array has its individual echo cancelling means (Matsuo,fig.4 wt (2-1...2-N)).

Re claim 10 has been analyzed and rejected with respect to claim 1 above.

Re claim 2, the system according to claim 1 with the filter arrangement, However, the combined teaching of Boland and Matsuo as a whole, fail to disclose of the wherein the filter arrangement includes a beamformer having at least a filter and sum beamformer and/or a delay and sum beamformer. However, Matsuo disclose of a system wherein the similar concept of having the filter arrangement includes a beamformer having at least a filter and sum beamformer and/or a delay and sum beamformer (fig.5-6,9) for the purpose of emphasizing the directivity of target sound while suppressing the noise signal. Thus, taking the combined teaching of Boland and Matsuo (old & new teaching )as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify the combined teaching of Boland and Matsuo (old teaching )as a whole, by incorporating the filter arrangement includes a beamformer having at least a filter and sum beamformer and/or a delay and sum beamformer for the purpose of emphasizing the directivity of target sound while suppressing the noise signal.

3. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boland (US 2003/0123674 A1) and Matsuo (US 6,317,501 B1) and further in view of further in view of Hugas (US 7,068,004).

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Re claim 6, the system according to claim 1, However, the combined teaching of Boland and Matsuo as a whole, fail to disclose of the wherein the system is provided with automated filter coefficient update control means coupled to at least the filter arrangement. However, Hugas et al. disclose of a system wherein the system is provided with automated filter coefficient update control means coupled to at least the filter arrangement (col.6 line 40-46/to permit controlling the echo cancelling filter with adaptive algorithm) for the purpose of preventing the entire system form electro-acoustically coupling and becoming unstable. Thus, taking the combined teaching of Boland and Matsuo and Hugas et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of Boland and Matsuo as a whole, by incorporating the system is provided with automated filter coefficient update control means coupled to at least the filter arrangement for the purpose of preventing the entire system form electro-acoustically coupling and becoming unstable.

Re claim 7, the system according to claim 1, However, the combined teaching of Boland and Matsuo as a whole, fail to disclose of the further wherein the filter arrangement has an output, and the system comprises output echo canceller means coupled between the filter output and the audio output. However, Hugas et al. disclose of a system wherein the further wherein the filter arrangement has an output, and the system comprises output echo canceller means coupled

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between the filter output and the audio output (fig.3-4 wt (16)/additional canceller added) for the purpose of automatically controlled depending on the signal level at the output echo canceller, preventing the saturation of the system against instability. Thus, taking the combined teaching of Boland and Matsuo and Hugas et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of Boland and Matsuo as a whole, by incorporating the further wherein the filter arrangement has an output, and the system comprises output echo canceller means coupled between the filter output and the audio output for the purpose of automatically controlled depending on the signal level at the output echo canceller, preventing the saturation of the system against instability.

RE claim 8, has been analyzed and rejected with respect to claim 6 above.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boland (US 2003/0123674 A1) and Matsuo (US 6,317,501 B1).

Re claim 5, the system according to claim 1, wherein the system is arranged for updating the filter coefficients (page 2 par[0018,0025,0049]), However, the combined teaching of Boland and Matsuo as a whole, fail to disclose of the updating during a training


session. However, official notice is taken the concept of updating the filter coefficients during training session is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify the combined teaching of Boland and Matsuo as a whole, by incorporating the updating during a training session for the purpose of determining how accurate the true echo will be replicated for proper cancellation.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
VIVIAN CHIN  
SUPERVISOR/PAIR EXAMINER  
TECHNOLOGY CENTER 2600

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